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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,475	09/29/2004	Marten Erik Van Dijk	NL 020268	5687

24737 7590 07/11/2007
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
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2112

MAIL DATE	DELIVERY MODE
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07/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,475	Applicant(s) VAN DIJK ET AL.	
	Examiner Joseph D. Torres	Art Unit 2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-16 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>06/04/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I (claims 1-10 and 12) in the reply filed on 01/24/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 11 and 13-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 01/24/2007.

Drawings

2. The drawings were received on 06/04/2007. These drawings are accepted.

Specification

3. The specification and abstract were received on 06/04/2007. This specification and abstract were accepted.

Claim Objections

4. In view of the amendment filed 06/04/2007, the Examiner withdraws all prior objections to the claim.

Response to Arguments

5. Applicant's arguments filed 06/04/2007 have been fully considered but they are not persuasive.

The Applicant contends, "Applicants believe that the above changes and explanation answer the Examiner's objection to and 35 U.S.C. 112, paragraph 2, rejection of the claims, and respectfully request withdrawal thereof".

The Examiner disagrees and asserts that Claim 1 was rejected for the term "said code over a first Galois field" and "a horizontal error correcting code over a second Galois field". It is still not clear what Galois fields the claim is referring to. For example, in the Applicant's Figure 3a-3b the bits in a row exist in the Galois Field $GF(2)$ and the bytes in a row exist in Galois Field $GF(2^8)$ (likewise for the columns in the Applicant's Figure 3a-3b). The Applicant's explanation does not address these subtleties nor does the 35 U.S.C. 112, paragraph 2, rejection call for an explanation, but instead requires a correction to the language to clearly point out what the Applicant regards as the Applicant's invention.

The Applicant contends, "It is unknown to Applicants how this relates to the second Galois field being larger than the first Galois field, since Inoue et al. only discloses one Galois field $GF(2^8)$ " and basically recites that Inoue and Ohira do not teach all of the elements of claim 1.

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The Examiner disagrees and asserts that Inoue and Ohira teach error correcting code, formed by encoding information into code words of the error correcting code over a first Galois field, and a number of code words are arranged in the columns of a code block comprising a user data sub-block and a parity data sub-block (col. 1, lines 35-37 in Inoue teach C2 symbols are first appended to columns to form column codewords; col. 2, lines 27-30 teach error correction codes can be over any Galois field $GF(2^m)$ where m is arbitrary), is further encoded by encoding the rows of the user data sub-block using a horizontal error correcting code over a second Galois, to form at least horizontal parities, (col. 1, lines 37-40 in Inoue teach C1 symbols are then appended to rows to form horizontal codewords with parity at the end of the codeword in each row) and that the horizontal parities are then embedded into the original error correcting code (Figure 1 is the complete product code with both horizontal and vertical parities embedded). In addition, Ohira explicitly teaches a second Galois field larger than the first Galois field (Figure 9A is a list of C1 codes and Figure 9B is a list of code for C2 codes along with their associated Galois Fields; Note: col. 19 in Ohira suggests any combination of C1 and C2 codes from the tables in Figures 9A-9B of Ohirai including the combination where the second Galois field larger than the first Galois field).

The Applicant contends in reference to Ohira, "It is unknown to Applicants how this relates to the second Galois field being larger than the first Galois field, since Inoue et al. only discloses one Galois field $GF(2^8)$ "

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That is incorrect. Col. 2, lines 27-30 teach error correction codes can be over any Galois field $GF(2^m)$ where m is arbitrary and Ohira suggests any combination of C1 and C2 codes from the tables in Figures 9A-9B of Ohirai including the combination where the second Galois field larger than the first Galois field whereby Figure 9A is a list of C1 codes and Figure 9B is a list of code for C2 codes along with their associated Galois Fields.

The Applicant contends, "It is unclear to Applicants how this relates to the adding of "zero" bits to a codeword prior to undergoing an encoding process".

The quoted language clearly state that padding simplifies implementation since the encoder is expecting an specific size $N \times M$ array of user data.

The Examiner disagrees with the applicant and maintains all rejections of claims 1-8, 10 and 12. All amendments and arguments by the applicant have been considered. It is the Examiner's conclusion that claims 1-8, 10 and 12 are not patentably distinct or non-obvious over the prior art of record in view of the references, Inoue; Tohru et al. (US 5712861 A, hereafter referred to as Inoue) in view of Ohira; Masaki et al. (US 7024616 B2, hereafter referred to as Ohira) in view of Nakakita; Kumiko et al. (US 6061820 A, hereafter referred to as Nakakita) in further view of Tanaka; Shinichi (US 5276674 A, hereafter referred to as Tanaka) in view of Inoue; Sadayuki et al. (US 5696774 A, hereafter referred to as Inoue_ Sadayuki) in view of Hattori et al. (M. Hattori, R. J. McEliece, G. Solomon "Subspace subcodes of Reed-Solomon codes", IEEE

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transactions on IT, vol. 44, no. 5, September 1998, hereafter referred to as Inoue_ Hattori) and BAGGEN, C P M J et al. (WO 9934271 A, hereafter referred to as BAGGEN) as applied in the last office action, filed 03/12/2007. Therefore, the rejection is maintained.

Claim Rejections - 35 USC § 112 (directly copied from the Non-Final filed 3/12/2007)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "said code over a first Galois field" and "a horizontal error correcting code over a second Galois field". Since not only can the symbols or bits in a codeword be elements of a Galois field, but also, so can the codewords be elements of a Galois field and it is not clear what Galois field the Applicant is referring to.

Claim 12 recites, "said code over a first Galois field" and "a horizontal error correcting code over a second Galois field". Since not only can the symbols or bits in a codeword be elements of a Galois field, but also, so can the codewords be elements of a Galois field and it is not clear what Galois field the Applicant is referring to.

Claims 2-10 depend from claim 1 hence are rejected for the same reason.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue; Tohru et al. (US 5712861 A, hereafter referred to as Inoue) in view of Ohira; Masaki et al. (US 7024616 B2, hereafter referred to as Ohira).

See the Final Action filed 03/12/2007 for detailed action of prior rejections.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue; Tohru et al. (US 5712861 A, hereafter referred to as Inoue) and Ohira; Masaki et al. (US 7024616 B2, hereafter referred to as Ohira) in view of Nakakita; Kumiko et al. (US 6061820 A, hereafter referred to as Nakakita).

See the Final Action filed 03/12/2007 for detailed action of prior rejections.

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9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue; Tohru et al. (US 5712861 A, hereafter referred to as Inoue) and Ohira; Masaki et al. (US 7024616 B2, hereafter referred to as Ohira) in further view of Tanaka; Shinichi (US 5276674 A, hereafter referred to as Tanaka).

See the Final Action filed 03/12/2007 for detailed action of prior rejections.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue; Tohru et al. (US 5712861 A, hereafter referred to as Inoue), Ohira; Masaki et al. (US 7024616 B2, hereafter referred to as Ohira) and Tanaka; Shinichi (US 5276674 A, hereafter referred to as Tanaka) in view of Inoue; Sadayuki et al. (US 5696774 A, hereafter referred to as Inoue_ Sadayuki).

See the Final Action filed 03/12/2007 for detailed action of prior rejections.

11. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue; Tohru et al. (US 5712861 A, hereafter referred to as Inoue), Ohira; Masaki et al. (US 7024616 B2, hereafter referred to as Ohira) and Tanaka; Shinichi (US 5276674 A, hereafter referred to as Tanaka) in view of Hattori et al. (M. Hattori, R. J. McEliece, G. Solomon "Subspace subcodes of Reed-Solomon codes", IEEE transactions on IT, vol. 44, no. 5, September 1998, hereafter referred to as Inoue_ Hattori).

See the Final Action filed 03/12/2007 for detailed action of prior rejections.

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12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue; Tohru et al. (US 5712861 A, hereafter referred to as Inoue) and Ohira; Masaki et al. (US 7024616 B2, hereafter referred to as Ohira) in further view of Tanaka; Shinichi (US 5276674 A, hereafter referred to as Tanaka) and BAGGEN, C P M J et al. (WO 9934271 A, hereafter referred to as BAGGEN).

See the Final Action filed 03/12/2007 for detailed action of prior rejections.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

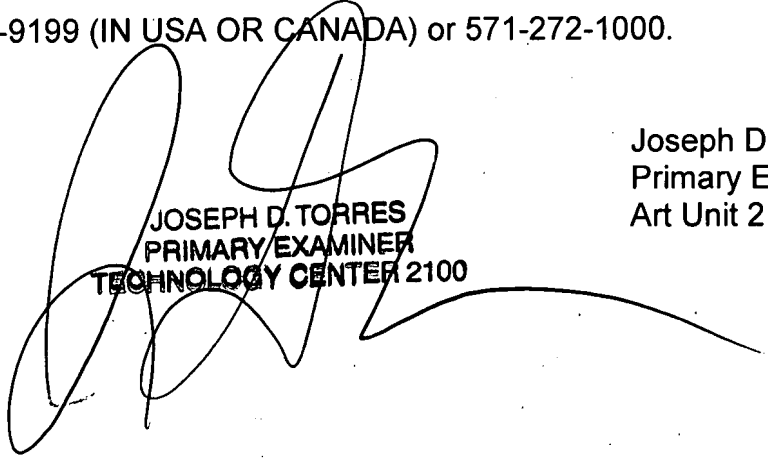
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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